

SHORTER NOTES

New Country and Regional Records from the Brazilian Side of Neblina Massif.—A list of 37 species is reported here for the first time to the Brazilian side of Neblina Massif: one of the largest sandstone mountains of the western portion of the Guyana Shield along the Venezuelan-Brazilian border. Twenty-seven species represent new additions to the Brazilian Fern Flora (marked with an asterisk) and ten species are the first record to the northwestern portion of the Brazilian Amazon with their closest known Brazilian populations from the Atlantic Rainforests (marked with two asterisks). We provide information on previous geographic ranges and full specimen citation including habit, habitat, and elevation for all taxa.

The specimens were collected by the first author during an expedition to the Cachoeira do Anta (Anta waterfall), Amazonas, Brazil, at the southeastern part of Neblina massif from 24 December 24, 2003 to January 5, 2004. The expedition began at the foot of the Serra da Neblina, from the mouth of the Tucano River (0°37'14"N, 65°55'29.5"W, 50 m elevation) to the top of the Anta waterfall (0°51'20.3"N, 65°56'30.1"W, 2400 m elevation).

The botanical novelties presented here illustrate how the Brazilian side of the Guyana shield is relatively understudied compared to its neighboring areas in Venezuela. All specimens were fixed in 70% ethanol in the field and dried about a month after in an oven at 60° C. A complete set of vouchers is housed at the Herbarium of the Institute for Amazonian Research (INPA) in Manaus, Brazil, with duplicates (when available) sent to the Herbarium of the Federal University of Minas Gerais (BHCB).

*****Asplenium harpeodes* Kunze—*Carvalho et al.*, 351.** Epiphyte. Cloud forests, 2300 m. Distributed from Mexico to Brazil where it was previously known only from the Atlantic Rain Forest in Brazil.

*****Asplenium raddianum* Gaudich.—*Carvalho et al.*, 341.** Epiphyte. Upper montane forest, 1900 m. Previously known from Colombia, Venezuela, Ecuador, Peru, Bolivia and Brazilian Atlantic Forest.

*****Blechnum schomburgkii* (Klotzsch) C. Chr.—*Carvalho et al.*, 380.** Terrestrial. Tepui flat summit near rocks, 2300 m. Distributed from Costa Rica to Bolivia and southeastern Brazil.

*****Ceradenia capillaris* (Desv.) L. E. Bishop—*Carvalho et al.*, 384.** Rocks crevices along Rio Anta. Rocky outcrop, 2400 m. Previously known from Cuba, Jamaica, Hispaniola, Colombia, Venezuela, Ecuador, Peru, Bolivia, and the Atlantic forest in southeastern Brazil.

- **Cochlidium connellii* (Baker ex C. H. Wright) A. C. Sm.—*Carvalho et al.*, 383. Rocky crevices along Rio Anta, growing with mosses. Rocky outcrop, 2300 m. Previously known only from Guyana and Venezuela.
- **Cyathea vel* aff. *aurea* Klotzsch—*Carvalho et al.*, 344. Terrestrial. Fruticose meadows, 2300 m. The range of this taxon is from the Cordillera de la Costa in Venezuela along the northern Andes in Colombia, probably reaching northern Ecuador.
- **Cyathea gracilis* Griseb.—*Carvalho et al.*, 347. Terrestrial. Fruticose meadows, 2200 m. Previous records are from Costa Rica, Panama, Jamaica, Colombia, Ecuador, and northern Peru.
- **Cyathea marginalis* (Klotzsch) Domin—*Carvalho et al.*, 385. On rocks near stream. Rocky outcrop, 2300 m. It is widespread in the Guayana shield from French Guiana to Venezuela.
- **Cyathea neblinae* A.R. Sm.—*Carvalho* 308, 320. Terrestrial. Montane forests, 1300 m. Endemic from Neblina massif. Previous known from Venezuela.
- **Cyathea sipapoensis* (R. M. Tryon) Lellinger—*Carvalho et al.*, 335. Terrestrial. Upper montane forest, 1700 m. Previously known only from Cerro Sipapo (Venezuela), 550 km from Serra da Neblina.
- **Cyathea spectabilis* (Kunze) Domin—*Carvalho et al.*, 249. Terrestrial. Montane forests, 1100 m. Previous records are from Panama, Colombia, Venezuela, Guyana, Suriname, and French Guiana. The closest record of this species is from Serranía de Imataca, Venezuela, about 850 km from Sierra de la Neblina.
- **Cyathea steyermarkii* R. M. Tryon—*Carvalho et al.*, 237. Terrestrial. Montane forest, 1000 m. Previously known only from Cerro Autana (Venezuela), 490 km from Serra da Neblina.
- **Diplazium centripetale* (Baker) Maxon—*Carvalho et al.*, 304. On rocks along stream. Montane forest, 1300 m. Previously known from the Antilles, Venezuela, and Trinidad.
- **Elaphoglossum crispatum* Mickel var. *beitelii* Mickel—*Carvalho et al.*, 293. Epiphyte. Montane forests, 1300 m. Endemic to Serra da Neblina. Previous records from Venezuela.
- **Elaphoglossum wurdackii* Vareschi—*Carvalho et al.*, 337. Epiphyte in fallen branch. Upper montane forests, 1700 m. Previously known only from Venezuela.

- **Enterosora campbellii* Baker subsp. *campbellii*—*Carvalho et al.*, 366. Epiphyte. Cloud forest, 2000 m. Previously known from Jamaica and Venezuela.
- **Enterosora trichosora* (Hook.) L. E. Bishop—*Carvalho et al.*, 354. Epiphyte. Cloud forest, 2300 m. *Enterosora trichosora* is a rarely collected but widespread species with about ten known collections, including three from the Venezuelan side of Serra da Neblina (Alan Smith, pers. comm.). Previously known from Mexico, Guatemala, Costa Rica, Ecuador, and Peru. The nearest published record prior this one is from the Andes in Quito, Ecuador, 1400 km far from Serra da Neblina.
- **Enterosora parietina* (Klotzsch) L. E. Bishop—*Carvalho et al.*, 368. Epiphyte. Cloud forests, 1900 m. Previously known from Central America, Antilles, Colombia, Ecuador, Peru, and Venezuela.
- **Grammitis peritimundi* L. E. Bishop & A. R. Sm.—*Carvalho et al.*, 339. Epiphyte. Upper montane forests, 1800 m. Previously known only from Venezuela.
- **Hymenophyllum karstenianum* J. W. Sturm—*Carvalho et al.*, 338. Epiphyte on fallen branch. Upper montane forests, 1800 m. Previously known only from Venezuela and Peru.
- **Hymenophyllum lindenii* Hook.—*Carvalho et al.*, 355, 361, 394. Epiphyte. Upper montane forests, 1900 m, and Cloud forests, 2300 m. Previously known only from Colombia, Venezuela, and Peru.
- ***Lindsaea arcuata* Kunze—*Carvalho et al.*, 329. Terrestrial. Montane forest, 1500 m. Previously known from Venezuela, Colombia, Guyana, Suriname, French Guiana, and from the Atlantic forests in southern and southeastern Brazil.
- **Lindsaea cultriformis* K. U. Kramer—*Carvalho et al.*, 291. Terrestrial. Montane forest, 1300 m. Previously known only from Colombia and Venezuela. The nearest record of this species is from Cerro Aratitiope about 200 km from Serra da Neblina.
- **Lindsaea stricta* (Sw.) Dryand. var. *jamesoniformis* K. U. Kramer—*Carvalho et al.*, 386. Rock crevices along Rio Anta. Rocky outcrops, 2400 m. Previously known from Porto Rico, Colombia, Venezuela, Guyana, and Suriname.
- **Lycopodiella steyermarkii* B. Øllg.—*Carvalho et al.*, 348. Terrestrial. Fruticose meadows, 2300 m. Previously known from Costa Rica, Panama, Colombia, Venezuela, and Ecuador.
- ***Polyphlebium diaphanum* (Kunth) Ebihara & Dubuisson—*Carvalho et al.*, 396. Epiphyte. Cloud forests, near streams, 2300 m. *Polyphlebium diaphanum*

occurs from Mexico to Brazil. Previous records in Brazil are from the Atlantic forest region.

- **Polypodium aturense* Maury—*Carvalho et al.*, 319. Arching epiphyte. Montane forest, 1300 m. Previously known only from semideciduous forests in Venezuela, 100–400 m.
- **Pterozonium paraphysatum* (A. C. Sm) Lellinger—*Carvalho et al.*, 390. Rock crevices along Rio Anta, erect rhizome. Rock outcrop, 2400 m. Previously known from Venezuela, Guyana, and Suriname.
- **Serpocaulon sessilifolium* (Desv.) A. R. Sm.—*Carvalho et al.*, 377. Epiphyte. Semideciduous forest, 2400 m. Previously known from Costa Rica, Colombia, Venezuela, Ecuador, Peru, and Bolivia. The nearest record is from Cerro Marahuaka, Venezuela, about 300 km from Serra da Neblina.
- **Stenogrammitis jamesonii* (Hook.) Labiak—*Carvalho et al.*, 343, 357. Epiphyte. Upper montane forest, 2000 m; and Cloud forests, 2300 m. Previously known from Guatemala, Costa Rica, Venezuela, Colombia, Ecuador, Peru, and Bolivia.
- **Stigmatopteris longicaudata* (Liebm.) C. Chr.—*Carvalho et al.*, 324. Terrestrial. Montane forest, 1300 m. Previously known from Mexico to Bolivia including Venezuela and French Guiana.
- ***Terpsichore asplenifolia* (L.) A. R. Sm.—*Carvalho et al.*, 363. Epiphyte. Cloud forest, 1900 m. Previously known from Mexico, Antilles, Mesoamerica, Colombia, Venezuela, Ecuador, Peru, Bolivia, and Atlantic forest in northeastern Brazil.
- ***Terpsichore taxifolia* (L.) A. R. Sm.—*Carvalho et al.*, 244. Epiphyte on moss-covered trunk. Montane forest, 1100 m. Previously known from Costa Rica, Panama, Antilles, Colombia, Venezuela, Guyana, Suriname, Ecuador, Peru, Bolivia, and Atlantic forest in Brazil. The nearest record for this species is from Cerro Duida, Venezuela, about 300 km from Serra da Neblina.
- **Trichomanes caliginum* Lellinger—*Carvalho et al.*, 278. On rocks along stream. Montane forests, 1300 m. Previously known from Venezuela, Guyana, and Suriname. The nearest record of this species is from Cerro Marahuaca, about 325 km from Serra da Neblina.
- **Trichomanes dactylis* Sodiro—*Carvalho et al.*, 346. Terrestrial. Cloud forests, 1900 m. Previously known from Panama, Colombia, Venezuela, and Ecuador.
- ***Trichomanes robustum* E. Fourn.—*Carvalho et al.*, 333. Epiphyte on moss-covered trunk. Upper montane forest, 1700 m. Previously known from Antilles,

Venezuela, Colombia, Ecuador, and Brazil. Prior Brazilian records are from the Atlantic Forest, northeastern Brazil.

*****Thelypteris gardneriana*** (Baker) C. F. Reed—*Carvalho et al.*, 358, 395. Terrestrial near stream. Cloud forest, 2300 m. Previously known from Venezuela, Colombia, Ecuador, Peru, Bolivia, and southern and southeastern Brazil.

We thank the Yanomamis from Maturacá who allowed the first author to collect in their area. We thank the following researchers who have helped with the identifications and providing information on rare species: Dr. Alan Smith (*Enterosora*) and Dr. Marcus Lehnert (*Cyathea*). Financial and logistic support was provided by the National Park of Pico da Neblina, ICMBio/MMA/Brazilian Government. The third author received financial support from PROTAX (MCT/CNPq/MEC/CAPES N° 52/2010) during the production of this manuscript.—FERNANDA ANTUNES CARVALHO, Instituto Nacional de Pesquisas da Amazônia, Coordenação de Botânica, Av. André Araújo 2936, Manaus, Amazonas, 69060-001, Brazil; ALEXANDRE SALINO, Universidade Federal de Minas Gerais, Instituto de Ciências Biológicas, Departamento de Botânica, Caixa Postal 486, Belo Horizonte, Minas Gerais, 30123-970, Brazil; and CHARLES EUGENE ZARTMAN, Instituto Nacional de Pesquisas da Amazônia, Coordenação de Botânica, Av. André Araújo 2936, Manaus, Amazonas, 69060-001, Brazil.